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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/662,192	09/14/2000	Evan George Colgan	JP919990123US1	2399

7590 06/12/2003
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EXAMINER

AKKAPEDDI, PRASAD R

ART UNIT PAPER NUMBER

2871

DATE MAILED: 06/12/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/662,192

Applicant(s)

COLGAN ET AL.

Examiner

Prasad R Akkapeddi

Art Unit

2871

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 March 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-38 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 37 and 38 is/are allowed.
- 6) ☒ Claim(s) 1-6, 9-17, 20-28 and 31-36 is/are rejected.
- 7) ☒ Claim(s) 7, 8, 18, 19, 29 and 30 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 September 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Response to Arguments

1. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

2. Applicant's arguments, see Response to Office Action, filed 03/24/2003, with respect to Claims 37 and 38, have been fully considered and are persuasive. The rejection of Claims 37 and 38 has been withdrawn.
3. Applicant's arguments filed 03/24/2003, with respect to claims 1- 36 have been fully considered but they are not persuasive. The original rejections for claims 1-36, as stated in the Office Action dated 10/15/2002 are still valid.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

5. Claims 1-3,5-6, 12-14,16-17, 23-25, 27-28, 34-36 are rejected under 35 U.S.C. 102(e) as being anticipated by Sato et al (Sato) (U.S. Patent 6,081,305).

As to claims 1, 12 and 23: Sato discloses a liquid crystal light valve (Fig. 2) comprising: a plurality of light-reflecting films (140, 160, 180) with one or more spaces, a semiconductor substrate (100) connected electrically to the light-reflecting films, a counter substrate (300) provided on an incident-light side thereof, a liquid crystal (200) disposed in a cell gap formed between the light-reflecting films and the counter substrate, counter electrodes (302) provided on the counter-substrate, an electric circuit formed in the semiconductor substrate (101a, 102), which is configured to apply voltage to the light-reflecting films and the counter electrodes a light-blocking layer (163) formed below the light-reflecting films (140, 160 and 180) a first insulating layer (130) formed between the light-blocking layer and the electric circuit, a second insulating layer (150), a stud (141) which is configured to electrically connect the electric circuit and light-reflecting films, light shields (164) provided on the light-blocking layer

formed below the light-reflecting films (180) and a third insulating layer (170) formed between the light shields and the light-reflecting films, wherein at least one of the light shields (180) and the light-blocking layer (163) is configured to block the incident light from the electric circuit.

As to claims 2,3,5,6, 13,14,16,17 and 24,25,27,28: Sato discloses that the light-blocking layer (163) is formed just below the light shields (180) and the electric circuit in the semiconductor substrate has a storage capacitance (1b), and the stud and the light shields and the light blocking layer are formed from Al (Col 14, line 23).

As to claims 34-36: Sato discloses a projection-type liquid crystal display device (Fig. 18) comprising, a light source (700), a projection lens (730) and a light valve (740) and the light valve comprising, a plurality of light-reflecting films (140, 160, 180) with one or more spaces, a semiconductor substrate (100) connected electrically to the light-reflecting films, a counter substrate (300) provided on an incident-light side thereof, a liquid crystal (200) disposed in a cell gap formed between the light-reflecting films and the counter substrate, counter electrodes (302) provided on the counter-substrate, an electric circuit formed in the semiconductor substrate (101a, 102), which is configured to apply voltage to the light-reflecting films and the counter electrodes a light-blocking layer (163) formed below the light-reflecting films (140, 160 and 180) a first insulating layer (130) formed between the light-blocking layer and the electric circuit, a second insulating layer (150), a stud (141) which is configured to electrically connect the

electric circuit and light-reflecting films, light shields (164) provided on the light-blocking layer formed below the light-reflecting films (180) and a third insulating layer (170) formed between the light shields and the light-reflecting films, wherein at least one of the light shields (180) and the light-blocking layer (163) is configured to block the incident light from the electric circuit.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 4, 9-11, 15, 20-22, 26, 31-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sato in view of Kahn (U.S. Patent No. 5,056,895).
- a. Although Sato describes a liquid crystal light valve having a storage capacitance and several metal layers and insulating layers, Sato does not explicitly disclose neither the material for the insulating layers nor the need not to have a storage capacitance. Kahn on the other hand, in disclosing a similar light crystal light valve device, discloses the composition of the oxide layers, which is well known in the art (Col. 5, lines 40-43) as SiO₂ or TaO₅ and if the liquid crystal material has a large enough intrinsic RC time constant, then additional storage capacitors are not needed (Cols. 6, lines 67-68 and Col 7, lines 1-2). Therefore, it would have been obvious to one having ordinary skill in the art at

the time the invention was made to adapt the compositions and the storage capacitance requirements as disclosed by Kahn to the liquid crystal valve disclosed by Sato to provide a high resolution, high contrast ratio and a very high brightness projector.

Allowable Subject Matter

8. Claims 37-38 are allowed.
9. Claims 7-8, 18-19, 29-30 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
10. A search of the prior art did not reveal (a) 'the specific thickness of 50-1000 Angstroms for the third insulating layer', as recited in claims 7, 18 and 29 (b) 'the light shields being formed below the inside peripheral portions of the light reflecting films at least 0.2 microns from the ends thereof', as recited in claims 8, 19 and 30. (c) A method for producing a liquid crystal light valve where 'forming a stud in the hole in the light-blocking layer and in the grooves in the first and second insulating layers, said stud configured to electrically connect the light-reflecting films and the electric circuit', as recited in claim 37.
11. Following is the response by the Examiner to the Applicant's arguments:
 - (a) Applicant argument No. 1 (page 2, lines 6-8 and lines 14-17): Sato fails to teach 'a light-blocking layer formed below the light-reflecting films' and 'light shields provided on the light blocking layer'. Further, 'the light-blocking layer 20

blocks the light from the light source..... light shield 38 which is formed afterward'.

Examiner's response to argument No. 1: Sato does teach that light-blocking layer (163) below the light-reflecting film (180) and the light shields (164) provided on the light-blocking layer (163). The light shields (164) are separate and distinct elements as can be seen in Fig. 2 of Sato. As to the product-by-process limitations "a light-blocking layer **formed** below the light-reflecting films" and "light shield 38 which is **formed** afterward", it has been recognized that "[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." In re Thorpe, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985).

(b) Applicant's argument No. 2 (Page 2, lines 29-30): Sato fails to teach or suggest, "Forming at least two insulating layers between any pair of such light-reflecting films and light-blocking layer".

Examiner's response to argument No. 2: Notwithstanding the process-by-process limitation as explained above, 'the formation of at least two insulating layers between any pair of such light-reflecting films and light-blocking layer', is NOT recited in the instant claims 1, 12 or 23.

Art, Unit: 2871

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Prasad R Akkapeddi whose telephone number is 703-305-4767. The examiner can normally be reached on 7:00AM to 5:30PM M-Th.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert H Kim can be reached on 703-305-3492. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9318 for regular communications and 703-872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0530.

June 2, 2003

ROBERT H. KIM
SUPERVISOR
TECHNICAL
JUN 2 2003